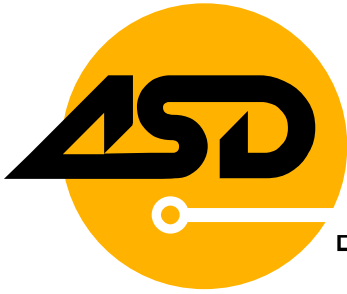


# **xPC56xLADPT144S MINIMODULE USER MANUAL**

**Cod. ASD433A**



<i>Rev.</i>	<i>Auth.</i>	<i>Date</i>
01.00	Eng. Alfonso FORGIONE	28.08.2009



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## **PURCHASE AGREEMENT**

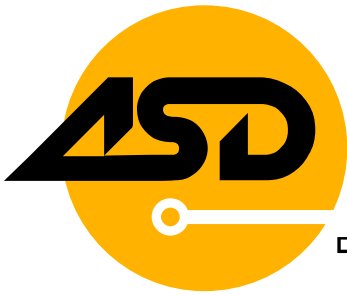
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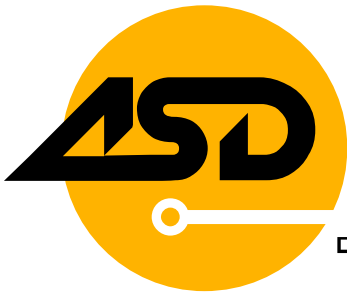


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## 1 - OVERVIEW

The xPC56xLADPT144S Minimodule is an evaluation system supporting for FSL MPC5643L microprocessor or STMicroelectronics SPC56EL microprocessor.

The minimodule may be used as a stand-alone unit, which allows access to the CPU, but no access to the I/O pins or any motherboards peripherals.

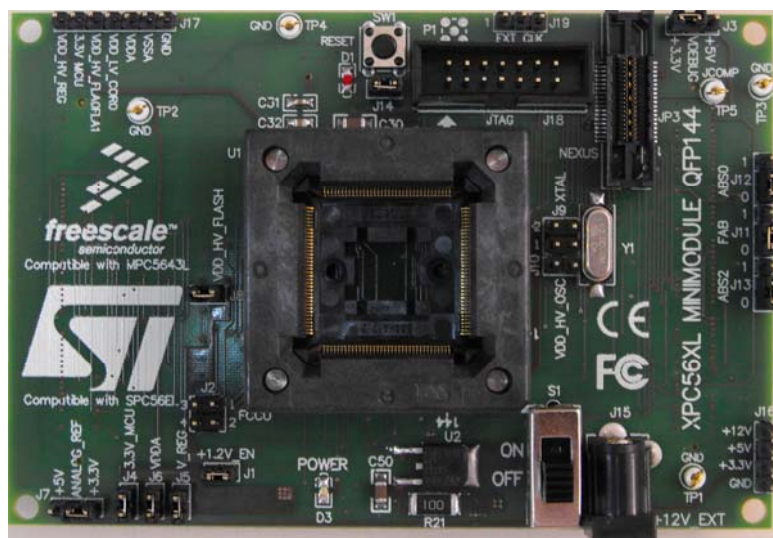


Fig.1 – Overview of the xPC56xLADPT144S Minimodule (ASD433A)

### 1.1 - Package Contents

An ASD433A minimodule includes the following item:

- One xPC56xLADPT144S Minimodule (ASD433A);
- ASD Warranty and Registration card.

### 1.2 - Supported Devices

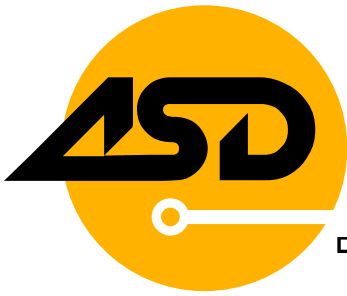
The ASD433A minimodule supports the following devices:

- FSL MPC5643L microprocessor (LQFP144);
- STMicroelectronics SPC56EL microprocessor (LQFP144).

### **1.3 - Handling precautions**

Please take care to handle the package contents in a manner such as to prevent electrostatic discharge.

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## 2 - HARDWARE FEATURES

An 38-pin Mictor Nexus port and a 14-pin JTAG port are provided on the Minimodule to allow usage of an external PowerPC Nexus interface.

### 2.1 - ASD433A - xPC56xLADPT144S Minimodule board features

- Can be used as a stand-alone board by providing external 12V power supply input;
- ON/OFF Power Switch w/ LED indicator;
- Reset button with filter and LED indicator;
- ASD433A has socket for xPC56xL device in 144LQFP footprint;
- Debug ports: 38-pin Mictor Nexus port and/or 14-pin JTAG port;
- Direct clock input through SMA connector (footprint only);
- Jumpers for boot configuration;
- 40MHz crystal with jumpers to optionally disconnect it.

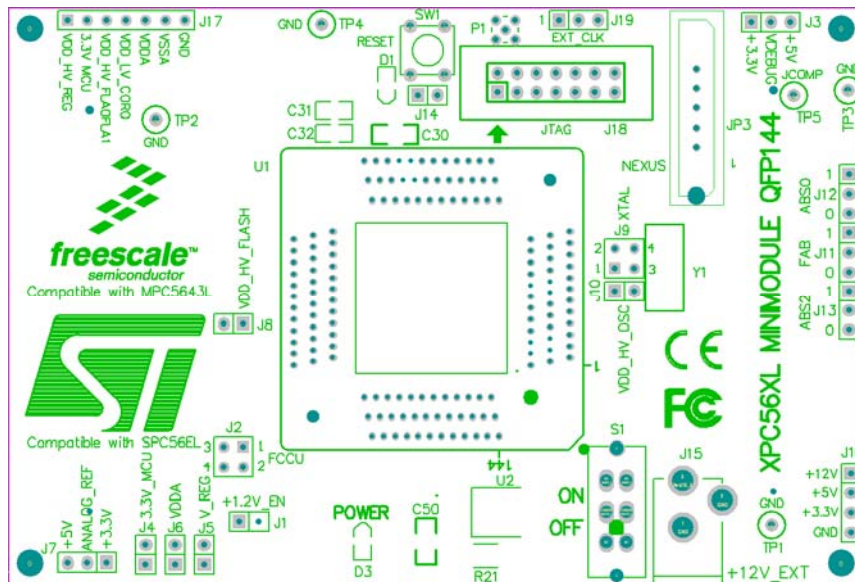
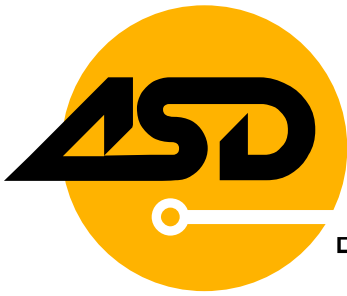


Fig.2 - xPC56xLADPT144S Top component placement



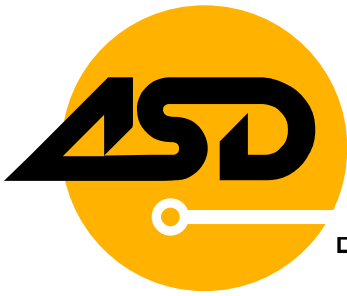
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## 2.2 - Pin numbering for jumpers

Jumpers for the Minimodules have a rectangular pad to indicate the position of pin 1. See examples below for the numbering convention used in this manual for jumper settings.



Fig.3 – Pin numbering



### 3 - HARDWARE & JUMPER SETTINGS

#### 3.1 - Power Supplies

When the Minimodule is plugged into the motherboard, power is supplied directly by the motherboard. In this setup, the external power supply input available on the Minimodule should NOT be used.

When the xPC56xLADPT144S Mini-Module is used as a stand-alone board, an external +12V power supply must be used. The minimodule obtains its power from the 12VDC Center Positive input barrel connector.

The following jumpers are used to configure the power supply:

- J1 – VDD\_LV\_COR0 Enable;
- J3 – Debug Port Voltage configuration (V\_DEBUG), select from +3.3V and +5V;
- J4 – MCU voltage Enable;
- J5 – VDD\_HV\_REG Enable;
- J6 – ADC Analog supply voltage Enable;
- J7 – Select Analog supply voltage from +3.3V and +5V;
- J9 – VDD\_HV\_FLA0FLA1 Enable;
- J10 – VDD\_HV\_OSC Enable.

#### 3.2 - Boot configuration

The following jumpers affect the operation of the processor as it initially comes out of the reset state:

- J11 – FAB configuration, controls whether the processor boots from internal FLASH or from a serial interface (CAN, SCI);
- J12 – ABS0 configuration, this jumper configures the ABS[0] pin;
- J13 – ABS2 configuration, this jumper configures ABS[2] pin.

#### 3.3 - System CLOCK configuration

The minimodule support the usage of crystal clock sources as well as external clock sources:





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- J9 – 40MHz crystal clock source Enable;
- J10 – External clock source Enable.

### 3.4 - Reset circuit

A RESET push button “SW1” on the minimodule can be used to RESET the processor. The J14 jumper Enable the reset circuit.

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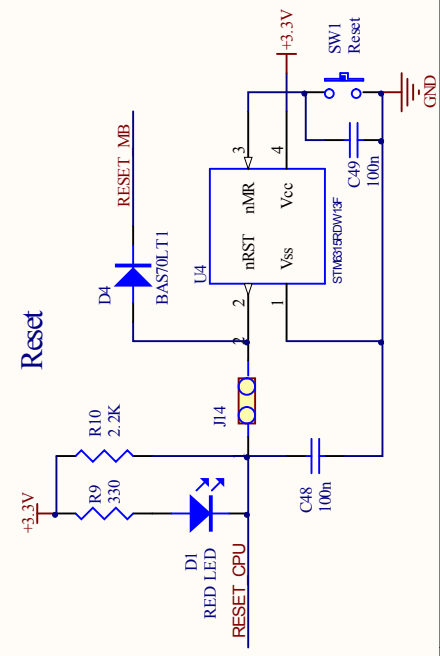
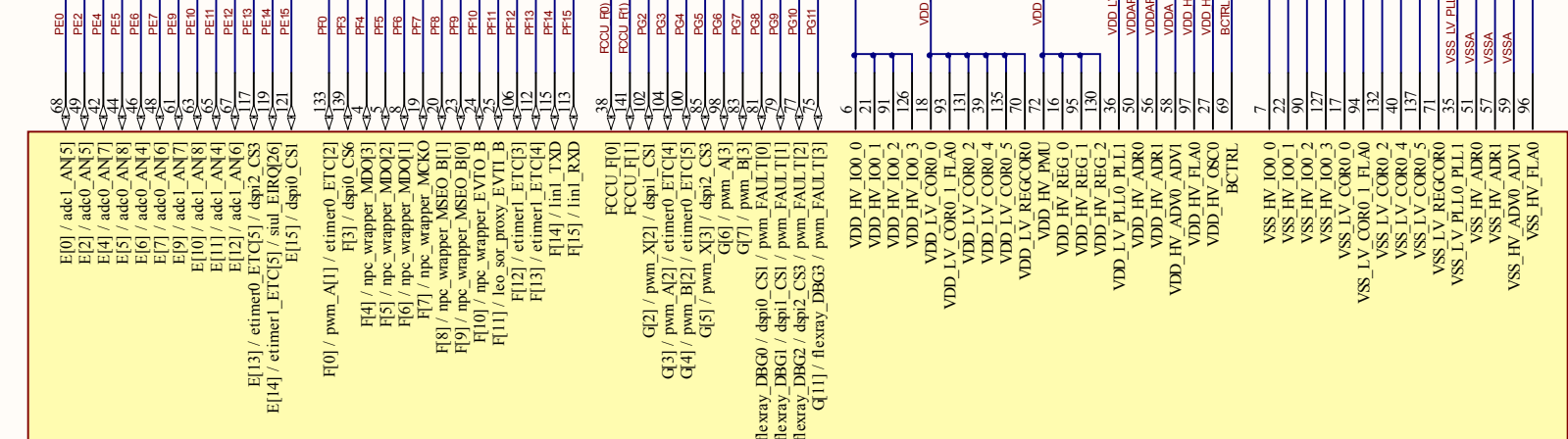
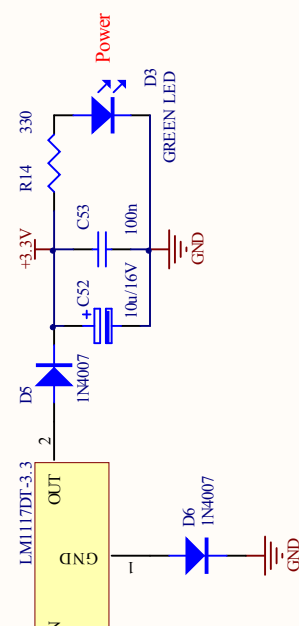
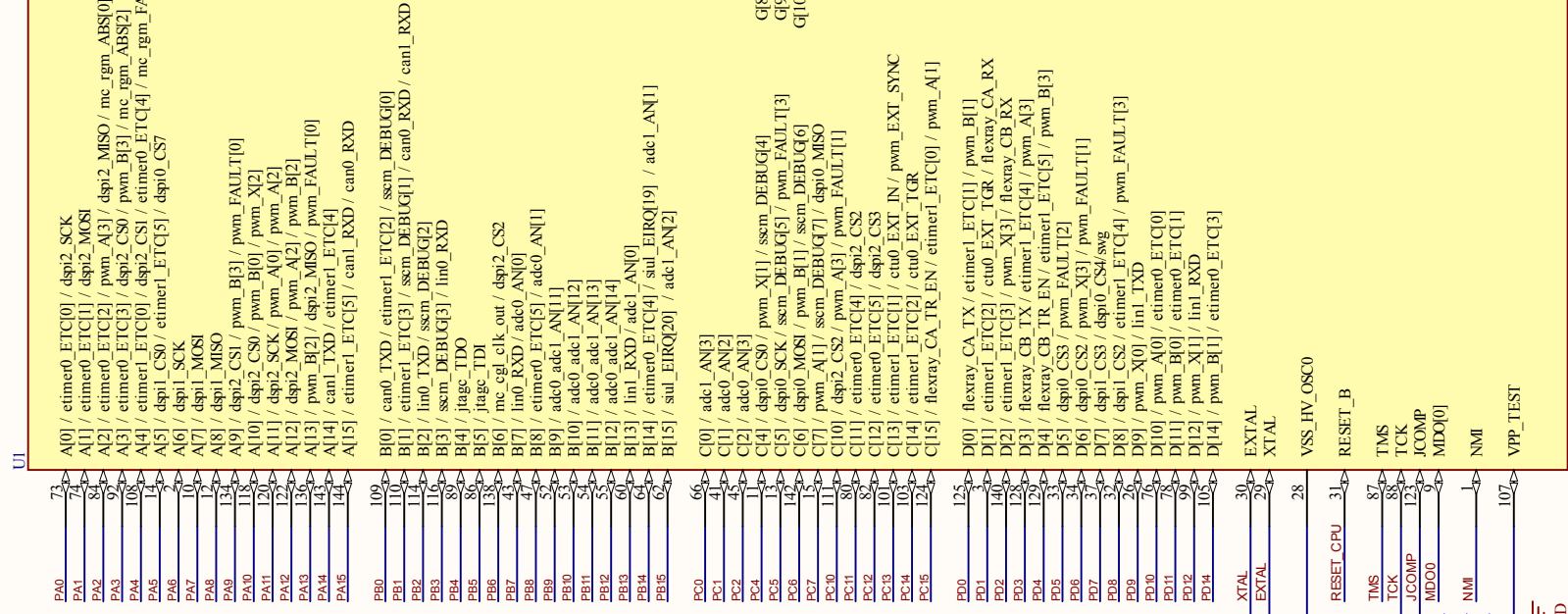
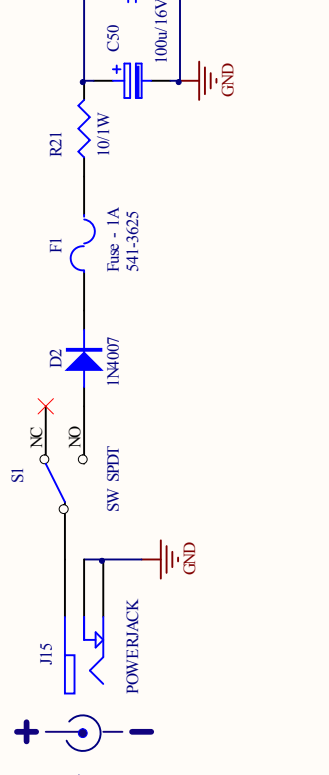
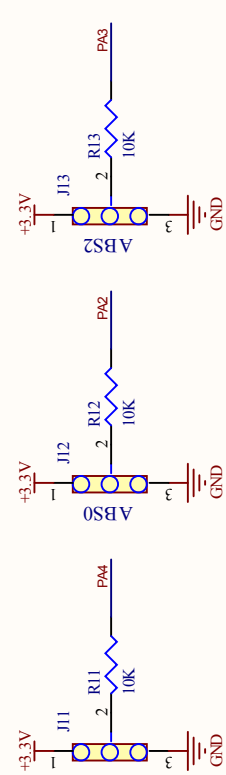
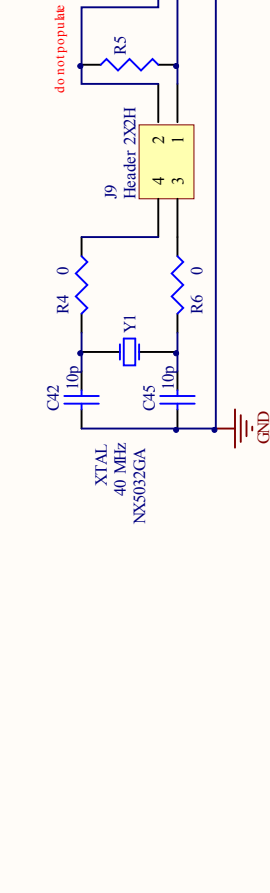
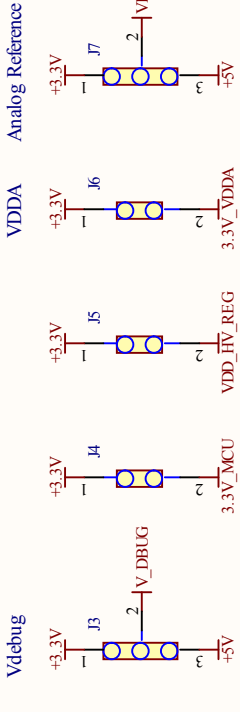
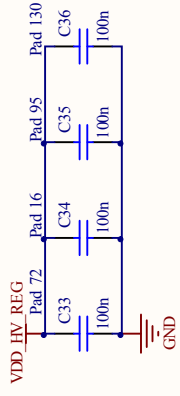
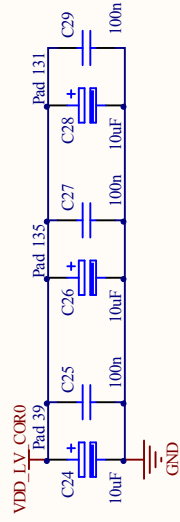
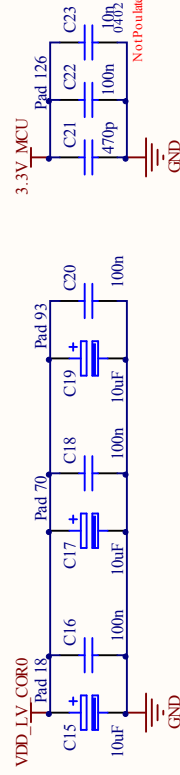
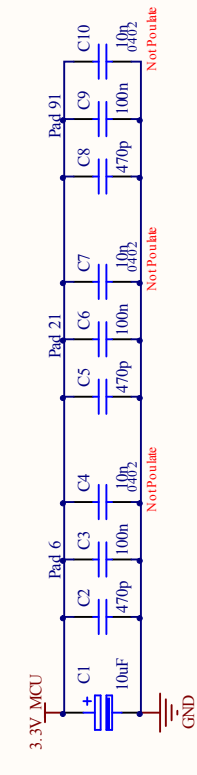


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#### 4 – SCHEMATIC AND BOM

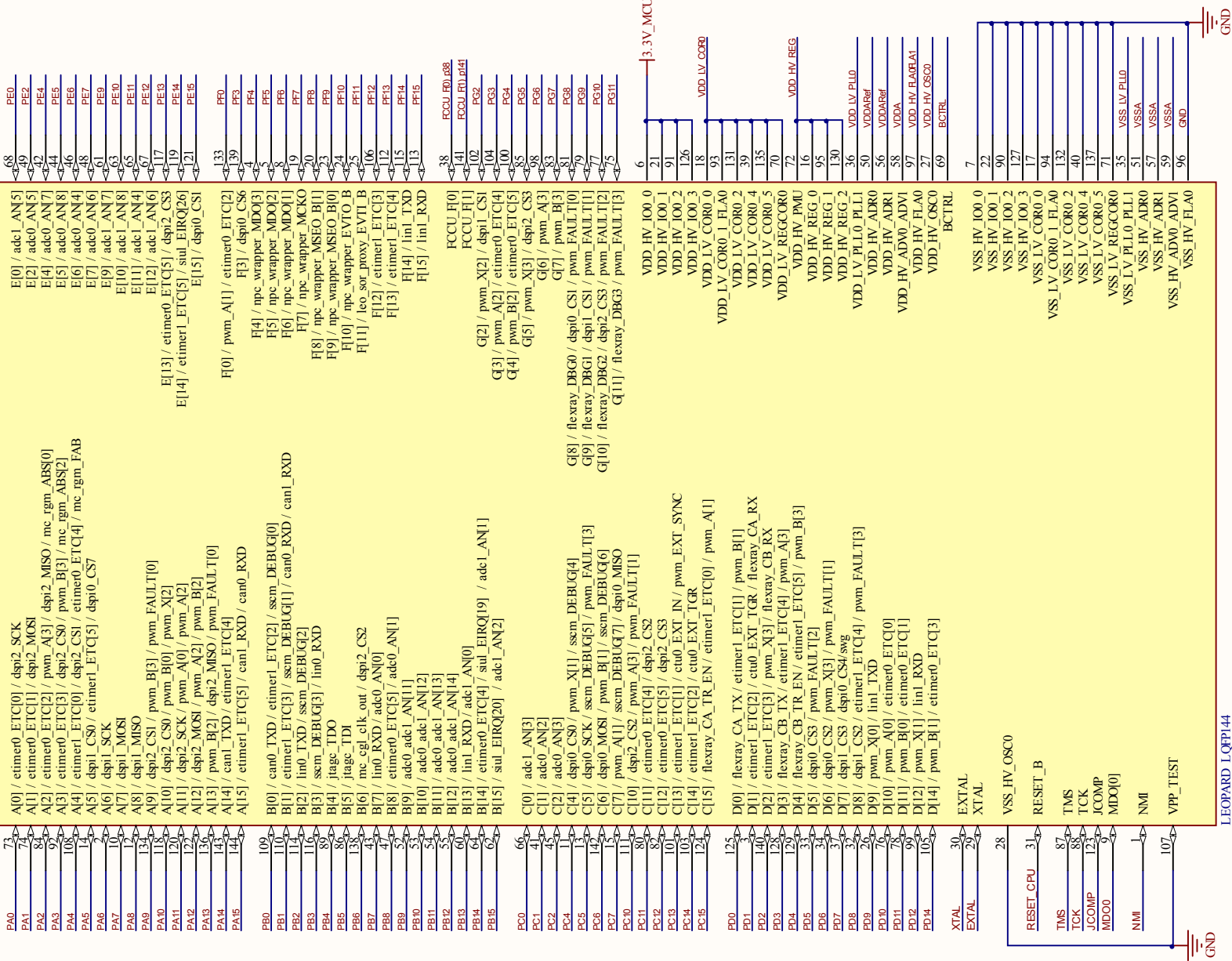
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Title		Leopard Minimodule BOARD - CPU
Size	Number	ASD433A
A3		
Date:	11/09/2009	
File:	C:\SERVER\1\Sheet1.SchDoc	
Sheet:	1	
Drawn:	D:\	



U3



LEOPARD\_I\_QFP144



Leopard Minimodule BOARD - CPU

Title		Revision	
Size	Number	ASD433A	
A3		1.0	
Date:	11/09/2009	Sheet 1 of 2	
File:	C:\SERVER\...Sheet3.SchDoc	Drawn By:	

# Bill of Materials

Source Data From:

ASD433A Leopard Board.PrjPCB

Project:

ASD433A Leopard Board.PrjPCB

Variant:

None

Creation Date: 11/09/2009

13.56.23

Print Date:

Footprint	Comment	LibRef	Designator	Description	Quantity
1206	10uF	COND EL	C1, C15, C17, C19, C24, C26, C28	Condensatore Elettrolitico	7
0603	470p	CAP	C2, C5, C8, C21	Condensatore	4
0603	100n	CAP	C3, C6, C9, C12, C14, C16, C18, C20, C22, C25, C27, C29, C33, C34, C35, C36, C44, C47, C48, C49, C51, C53, C55	Condensatore	23
0402	10n	CAP	C4, C7, C10, C23	Condensatore	4
0603	Do not populate	CAP, RES1	C11, R3, R5, R18	Condensatore, Resistenza	4
0603	10n	CAP	C13, C43, C46, C56	Condensatore	4
1206	1uF	COND EL	C30, C37	Condensatore Elettrolitico	2
0805	47n	CAP	C31, C38, C40	Condensatore	3
0805	10n	CAP	C32, C39, C41	Condensatore	3
0603	10p	CAP	C42, C45	Condensatore	2
1206	100u/16V	COND EL	C50	Condensatore Elettrolitico	1
1206	10u/16V	COND EL	C52	Condensatore Elettrolitico	1
1206	4.7uF	COND EL	C54	Condensatore Elettrolitico	1
0805 LED	RED LED	LED	D1	Diodo LED	1
DO-214AA	1N4007	1N4148	D2, D5, D6	Diodo	3
0805 LED	GREEN LED	LED	D3	Diodo LED	1
SOT-23	BAS70LT1	BAS70LT1	D4	Schottky Barrie Diodes	1
FUSE 452/454 SERIES	Fuse - 1A	Fuse 2	F1	Fuse	1
0805	FB_0	FB_0	FB1, FB2, FB3		3
SIP2	JUMPER_2	JUMPER_2	J1, J4, J5, J8, J10, J14		6
HDR2X2	Header 2X2H	Header 2X2H	J2, J9	Header, 2-Pin, Dual row, Right Angle	2
SIP3	Vdebug	JUMPER	J3		1
SIP2	VDDA	JUMPER_2	J6		1
SIP3	Analog Reference	JUMPER	J7		1
SIP3	FAB	JUMPER	J11		1
SIP3	ABS0	JUMPER	J12		1
SIP3	ABS2	JUMPER	J13		1
CON DC10A	POWERJACK	POWERJACK	J15	connettore per tensione esterna	1
SIP4	CON4	CON4	J16		1
HDR1X7	Header 7	Header 7	J17	Header, 7-Pin	1
IDC14	JTAG (14)	JTAG (14)	J18		1
SIP3	ExtClock	JUMPER	J19		1
5177984-5	HEADER 60X2	HEADER 60X2	JP1, JP2		2
PROBE AGILENT E5346A-38	38-pin MICRTOR	NEXUS-38	JP3	Connettore MICTOR	1
MMCX2.54-V5	COAX-M	COAX-M	P1	RF Coaxial PCB Connector, MMCX; Thru-Hole, Vertical Mount Plug, 50 Ohm	1
SOT223	BCP68	STN715	Q1		1
0603	0	RES1	R1, R2, R4, R6, R7, R15, R16, R17	Resistenza	8
0805	10K	RES1	R8, R11, R12, R13, R19, R20	Resistenza	6
0805	330	RES1	R9, R14	Resistenza	2
0805	2.2K	RES1	R10	Resistenza	1
6332[2512]	10/1W	RES1	R21	Resistenza	1
MFP201N	SW SPDT	SW SPDT	S1		1
PULSANTE1	Reset	PULSANTE	SW1	Pulsante generico	1
TEST POINT	GND	PIN TEST	TP1, TP2, TP3, TP4	Test Point	4
TEST POINT	JCOMP TEST	PIN TEST	TP5	Test Point	1
680HA144011X-001	LEOPARD_LQFP144	LEOPARD_LQFP144	U1, U3		2
TO-252 (DPAK)	LM1117DT-3.3	LD1117DT33	U2	Regolatore bassa caduta 3.3V	1
SOT-143	STM6315RDW13F	STM811	U4		1
HC49/4H SMX	XTAL	XTAL	Y1	Crystal Oscillator	1
					123

Approved

Notes
